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IN THIS ISSUE • IN HIERDIE UITGAWE

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Carbutamide and Diabetes Mellitus

The Fate of an Oral Anti-Diabetic Drug

Carbutamied en Diabetes Mellitus

Die Lotgevalle van 'n Mondelinge Middel vir die Bestryding van Suikersiekte

Impotence • Anterior Spinal Artery Thrombosis

Neuro-Ophthalmological Affections of the Optic Disc

Specific Psychological Tensions in South Africa

Notes and News: Berigte

Preparations and Appliances • Preparate en Toestelle

Book Review • Korrespondensie

Index of Contents (P. v)

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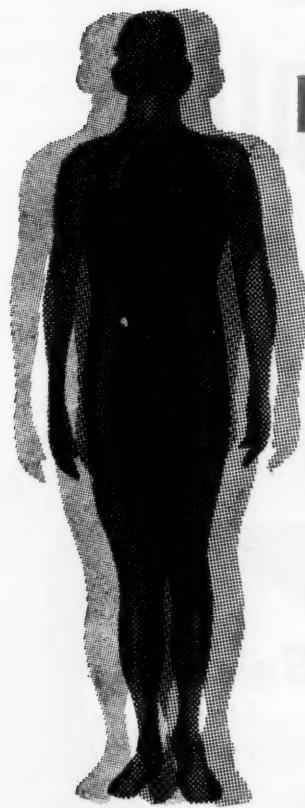
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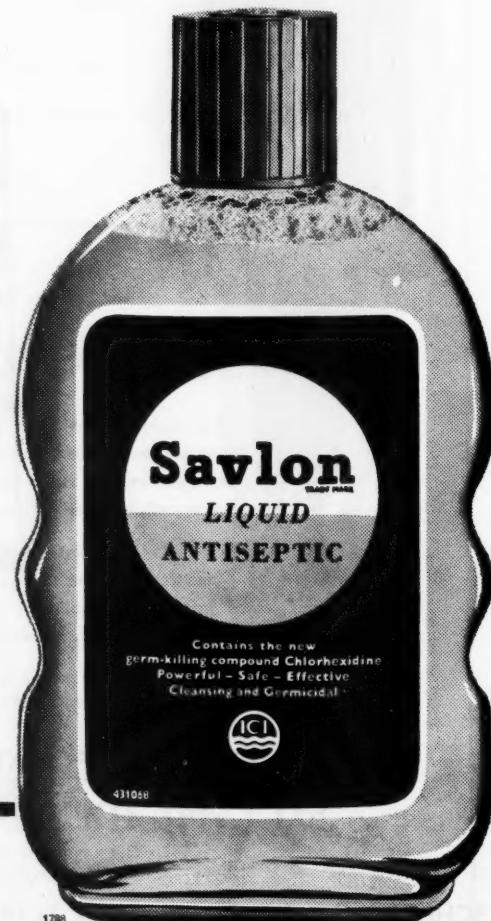
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Medical Proceedings · Mediese Bydraes

Vol. 3 · No. 2

INDEX · INHOUD

19 January 1957 Januarie 19

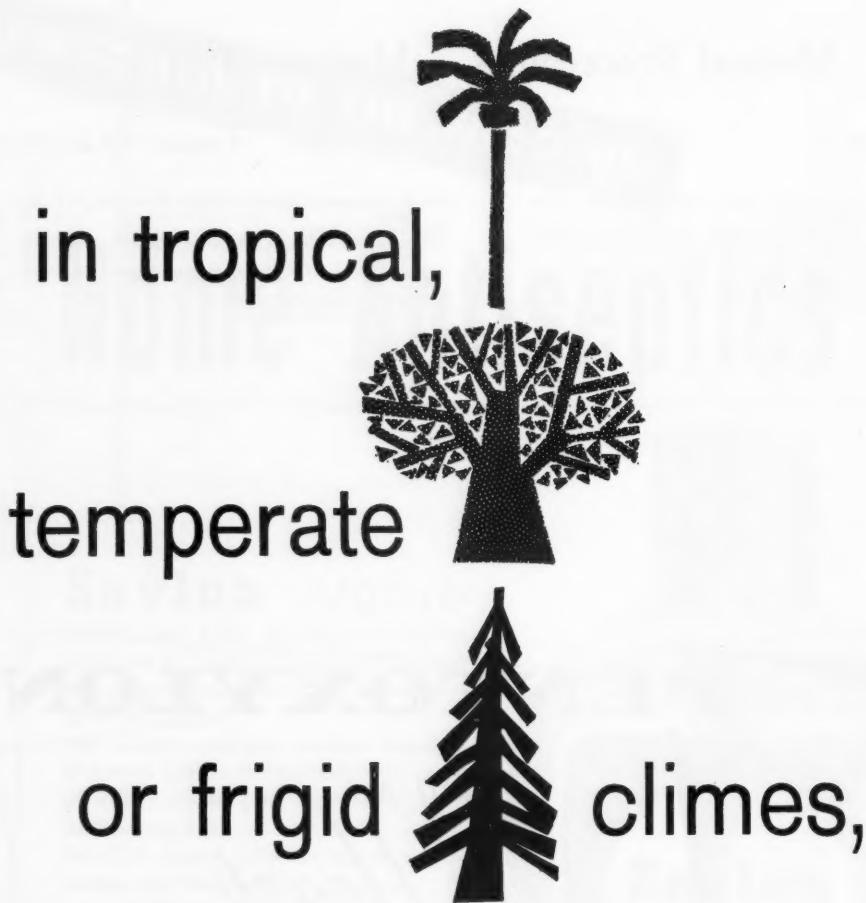
<i>Editorial: Carbutamide and Diabetes Mellitus—The Fate of an Oral Anti-Diabetic Drug...</i>	25	<i>Specific Psychological Tensions in South Africa. Dr. H. E. von Hoepen</i>	39
<i>Redaksioneel: Carbutamide en Diabetes Mellitus—Die Lotgevalle van 'n Mondelinge Middel vir die Bestryding van Suikersiekte</i>	25	<i>Notes and News: Berigte</i>	41
<i>Impotence: With a Report of a Case. Dr. A. L. Becker</i>	27	<i>Preparations and Appliances: Ef-Cortelan Nasal Spray; Neobracin Ointment</i>	42
<i>Anterior Spinal Artery Thrombosis: A Report of Two Cases. Dr. Ernest W. Rayner</i>	33	<i>Prepareate en Toestelle: Ef-Cortelaan Neusspuimiddel; Neobracin-Salf</i>	43
<i>Some Neuro-Ophthalmological Affections of the Optic Disc. Mr. I. B. Taylor, F.R.C.S.</i>	36	<i>Book Review: Disease and Travel</i>	44
		<i>Korrespondensie: Mediese Dienste</i>	44

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EDITORIAL · REDAKSIONEEL

CARBUTAMIDE AND DIABETES MELLITUS

THE FATE OF AN ORAL ANTI-DIABETIC DRUG

A drug effective against diabetes mellitus, when taken by mouth, has long been a challenge to students of metabolism. Earlier last year, it seemed likely that a substantial advance towards this objective had been made. Carbutamide, a drug related to the sulphonamides, appeared to have the property of bringing mild cases of diabetes under effective control.

It was also at first thought that this drug was non-toxic. Acute and chronic toxicity studies had not produced evidence of liver damage. In Germany more than 40,000 cases received the drug orally without any reported evidence of hepatic mischief. However, specially devised techniques have now demonstrated liver damage in animals made diabetic by pancreatectomy. This effect was reflected before death by a fall in prothrombin time. The suggestion therefore arises that the liver of the depancreatized animal may be more susceptible to this kind of toxic damage than is the case with the normal animal. Although the point has not been fully proved, the application to the clinical problem is clear, since the liver is an organ which is disturbed in a great variety of ways in cases of diabetes mellitus.

In recent months, several deaths (at least 7) have been reported in association with the use of carbutamide. This has alerted medical research workers to the serious problem now posed. At its best, the drug could only be regarded as one of convenience, rather than necessity, as established methods of treatment are effective and harmless.

CARBUTAMIED EN DIABETES MELLITUS

DIE LOTGEVALLE VAN 'N MONDELINGE MIDDEL VIR DIE BESTRYDING VANSUIKERSIEKTE

'n Middel wat doeltreffend teen diabetes mellitus sal wees as dit per mond toegedien word, is lank reeds 'n uitdaging aan die student van metabolisme. Vroeë verlede jaar het dit geskyn asof aansienlike vordering in die rigting van hierdie doelwit gemaak is. Carbutamied, 'n middel wat aan die sulfonamide verwant is, het skynbaar die vermoë besit om doeltreffende beheer uit te oefen oor ligte gevalle van suikersiekte.

Daar is aanvanklik ook gemeen dat hierdie middel nie-giftig is. Akute en kroniese toksisiteitsstudies het geen bewys van beschadiging van die lever opgelever nie. In Duitsland het meer as 40,000 pasiënte die middel mondeling ontvang sonder dat enige bewys van leverbenadering gerapporteer is. Hoe dit ook al sy, spesial ontwerppte tegnieke het nou leverbeschadiging aangeroep by diere by wie suikersiekte deur middel van pankreatektomie tweeggebring is. Hierdie effek het aan die lig gekom voordat die dood ingetree het deur 'n daling van die protrombien-tyd. Die suggestie is derhalwe dat die lever van die dier sonder 'n pankreas miskien meer vatbaar vir hierdie soort toksiese beschadiging is as die lever van 'n normale dier. Hoewel dié punt nog nie ten volle bewys is nie, is die toepassing daarvan op die kliniese probleem baie duidelik, aangesien die lever 'n orgaan is wat op 'n groot verskeidenheid van maniere versteur word in gevalle van diabetes mellitus.

In die afgelope maande is 'n hele paar sterfgevalle (ten minste 7) gerapporteer ná die gebruik van carbutamied. Dit het mediese

There now also seems general agreement that carbutamide has no effect on the blood sugar in the complete absence of insulin. Some evidence has been advanced of a stimulating effect on the islet cells, but the failure of carbutamide to alter the rate of glucose disappearance during glucose tolerance tests in normal and mildly diabetic subjects, is inconsistent with this hypothesis.

Carbutamide cannot, on the evidence available, be considered an insulin substitute and it is of least use in those diabetics who need insulin most. It will not remedy the diabetic defect responsible for acidosis, in which it is actually contra-indicated.

The clinical toxicity of carbutamide is considerable. The reactions have been predominantly of the allergic type, such as have been reported in the past with sulphonamides. In a statistical evaluation of an extensive study in the U.S.A., based on 6,850 cases, the total reported instances of toxic side effects of all types was 5.2%. The reactions included various types of hypersensitivity responses, such as effects on the blood-forming organs (leucopenia and anaemia), the skin (rashes of various types, including purpura and exfoliative dermatitis) and the cardiovascular system (including a case of interstitial myocarditis). In addition, drug fever and a syndrome comprising malaise and lethargy, frequently accompanied by nausea and vomiting, have been reported.

The decision of responsible investigators to discard further clinical trials with this particular drug is therefore wise and commendable, as its limited value in the field of diabetes mellitus cannot justify the serious and unnecessary risks to which the patient would be exposed.

Although the story of carbutamide constitutes a warning of the dangers attached to the use of oral anti-diabetic preparations, it is unlikely that interest in this field of research will be abandoned. Hundreds of oral drugs, extracts and chemical compounds, which seemed to offer some potential usefulness for the diabetic patient, have been tested. Carbutamide, which at first gave good grounds for optimism, has proved a great disappointment. It is known, however, that other compounds are under investigation which may offer more promise in repairing the underlying difficulty in diabetic metabolism without involving the patient in unwarranted and wholly unacceptable risks. This chapter in metabolic investigation is by no means closed.

navoringswerkers gewaarsku teen die ernstige probleem waaroor hulle nou te staan gekom het. Op sy beste was dit 'n gerieflike liewer as 'n noodsaaklike middel, want die gevestigde behandelingsmetodes is doeltreffend en onskadelik.

Dit skyn ook asof daar nou allerweé toegee word dat carbutamied geen effek op die bloedsuiker het in die algemele afwesigheid van insulien nie. Sekere bewyse i.v.m. 'n stimulerende effek op die eilandsele is aangevoer, maar die mislukking van carbutamied om die tempo van glukose-verdwyning te verander tydens glukose-verdraagsaamheidstoetse by pasiënte wat aan normale en lige vorms van suikersiekte ly, stem nie ooreen met hierdie teorie nie.

Aan die hand van die beskikbare getuienis kan daar nie beweer word dat carbutamied 'n plaasvervanger vir insulien is nie, en dit is van die minste waarde vir dié suikersiektyers wat die grootste behoefte aan insulien het. Dit sal nie die suikersiekte-effek wat verantwoordelik vir asidose is, verbeter nie, en in hierdie gevalle is daar in werklikheid kontra-indikasies vir die gebruik daarvan.

Die kliniese toksisiteit van carbutamied is groot. Die reaksies was oorwegend van die allergiese tipe, soos in die verlede dan ook in die geval van die sulfonamide gerapporteer is. In 'n statistiese ontleding van 'n uitgebreide studie wat in die Verenigde State met 6,850 persone gedoen is, het die totale aantal gerapporteerde gevallen van toksiese bykomstige effekte van alle soorte op 5.2% te staan gekom. Die reaksies het die volgende uitgesluit: verskillende soorte hiper-gevoeligheidsreaksies, soos 'n effek op die bloedvormende organe (leukopenie en anemie), die vel (huiduitslae van verskillende tipes, insluitende purpura en afskilferende huidontsteking), en die kardiovaskuläre stelsel (insluitende 'n geval van hartspierontsteking tussen die weefselle). Daarbenewens is middelkoers en 'n sindroom bestaande uit ongesteldheid en lusteloosheid wat dikwels van mislukking en braking vergesel gegaan het, ook gerapporteer.

Die besluit van verantwoordelike ondersoekers om verdere kliniese proefnemings met hierdie besondere middel te staak, is derhalwe verstandig en pryswaardig, aangesien die beperkte waarde daarvan in die sfeer van diabetes mellitus nie die ernstige en onnodige gevare waaraan die pasiënt blootgestel kan word, regverdig nie.

Hoewel die verhaal van carbutamied 'n waarskuwing is teen die gevare verbonde aan die gebruik van mondelinge preparate vir die bestryding van suikersiekte, is dit onwaarskynlik dat belangstelling in hierdie navorsingsfeer sal verdwyn. Honderde mondelinge middels, uittreksels en chemiese samestellings wat op die oog van waarde vir die suikersiektyer kan wees, is getoets. Carbutamied wat aanvanklike goeie gronde vir optimisme gebied het, was 'n groot teleurstelling. Dit is egter bekend dat ondersoek ingestel word na ander samestellings wat die belofte inhou dat hulle missienaar daarin sal slaag om die onderliggende moeilikhede in suikersiekte-metabolisme uit die weg te ruim sonder om ongeoorloofde en heeltemal onaanneemlike gevare vir die pasiënt mee te bring. Hierdie hoofstuk van metaboliese ondersoek is geensins geheel en al afsluit nie.

IMPOTENCE

WITH A REPORT OF A CASE

A. L. BECKER, M.B., B.CH.

Tara Hospital, Johannesburg

Macduff: What three things does drink especially provoke? *Porter:* Marry, sir, nose-painting, sleep and urine. Lechery, sir, it provokes and unprovokes; it provokes the desire, but it takes away the performance: therefore much drink may be said to be an equivocator with lechery: it makes him and it mars him; it sets him on and it takes him off; it persuades him and disheartens him; makes him stand to, and not stand to; in conclusion, equivocates him in a sleep and, giving him the lie, leaves him. (*Macbeth*, Act 2, Scene iii.)

Impotence may be defined as the failure to either initiate, sustain or successfully conclude the act of sexual intercourse to the satisfaction of the male. It may be partial or complete, temporary or permanent. A man may be incapable of sexual intercourse with one woman, but remain capable with others.

Impotence may be:

- (a) Primary or functional.
- (b) Secondary or organic.
- (c) Physiological.

REPORT OF A CASE

F. J. B. a Roman Catholic, married male aged 38 years, a battery-hand, was admitted on September 1954.

He complained of slowly developing impotence over the last 2 years. He had married 10 years before and satisfactory coitus had taken place until 2 years ago. He noticed that since then he had been 'getting weaker'—either erection was unsatisfactory from the start or 'it comes up and goes down', until for about 9 months he could not get an erection at all. Intercourse had taken place 'maybe 3 times in the 9 months'. He had night emissions and early morning erections.

Physical Examination. This revealed a short, thick-set male with a florid complexion, overweight, with marked adiposity of the breasts. His facial hair was sparse and he had no hair on the chest or in the axillae. He had a normal pubic hair distribution. The genitalia were normal, and no abnormalities of the penis, testes or adnexa were found.

Systemic examination was non-contributory.

Psychiatric Examination. He was 'hail-fellow-well-met' with patients and staff, helpful and co-operative with both and most obliging and anxious to please. He entered into the activities about the hospital with zest.

At the interview he appeared quite at ease, bright and alert, answered questions spontaneously and his attention was well held. No mannerisms were observed.

He was orientated in all spheres and no memory defect was observed. He was not hallucinated or deluded, nor had he any ideas of reference, influence or persecution. No compulsive or obsessive phenomena were elicited.

He gave a relevant and coherent account of himself in a circumlocutory, prolix manner. He was usually pleasant and smiling. His intelligence was low average and, on testing, he scored 90 in the Otis Self Administrative Test and 26 in the Progressive Matrices. This placed him in Social Group V.

Family History. He was born at Port Elizabeth on 16 April 1916, the third of 4 siblings. He has 3 elder half-siblings of the father's first marriage and 3 younger half-siblings of the mother's second marriage. The father was an alcoholic who died when the patient was 6 and he has no recollection of him. After the death of the father, the patient was placed in the Nazareth Home where he stayed up to 14 years of age.

His mother is alive. She was paralysed down the one side when the patient moved to the orphanage but this was 'cured' when he rejoined her 8 years later. Of her he says: 'She has never been a mother to me.' Before his marriage he used to pay her £10 a month for board and lodging, though he only spent one or two week-ends a month at home. He relates this with much resentment. He got minimal care for this attention and what he did receive was given with poor grace. He would visit her daily, usually on the way home from work, until 2 years ago. At that time an argument between his wife and his step-sister involved his mother. He was also drawn

in and took his wife's part. (His wife had said: 'It's your mother or me'). Since then he barely sees her. If they meet he will chat, possibly take her to tea out of filial duty, but he will not visit her, nor will she visit him. His stepfather was an itinerant showman, who was always unkind to the patient. He has only been friendly with his younger sister. His elder brother, shortly after his return from the orphanage, 'went off as a hobo'. He barely knows the elder half-siblings and feels little kinship with the younger half-siblings.

Personal History. He was a very asocial child, afraid of people and avoided them. He stuttered and lisped up to the age of 8 years. At 6 years he was sent to Nazareth House. 'I was very backward at school and needed to be shown over and over again.' He was bullied by the older boys and had to fag for them, yet when older he felt 'protective' towards the younger boys and would intercede for them with other 'big boys'.

He was taken out of school in Standard VI, and then travelled about with his step-father, mother and sister, helping to sell ice-cream with his stepfather's 'show', and selling his basketwork. At 19 years he joined the Railways and has been with them since except for 3 years with the Union Defence Force during the War. At Nazareth House he indulged in mutual masturbation on many occasions—'it was nice'. He did not mind boys touching him, but could not touch them. He masturbated regularly up to the time of his marriage, especially while 'up North'. He had erotic phantasies of women and denies any guilt. The patient was 'seduced' by a married woman at 18 years. His second foray was at 22 years. On this occasion it was 'a young girl'. He felt that coitus was satisfactory on both occasions, though it was quicker than when he got married. In Egypt during the War he visited a brothel and a 'Can-Can', but was disgusted by the attitude and the demeanour of the prostitutes, and by the show, and nearly vomited.

He was first married at 24 years to a girl of 18 years. He was in the Army at the time and only saw her at week-ends. The marriage was never consummated, as she had a discharge which she used as an excuse to avoid sexual relations, but which she did not have treated. She collected his Railway and Army pay while he was away, but on his return would have nothing to do with him. They were divorced in 1943.

Shortly after this he met his present wife. She told him all about her troubles, about her 'affair in Durban', 'her son aged six' and

difficulties about getting a job. A close friendship developed with this woman who is four years his senior. They were married in 1944 'because', as he said, 'he had to get married some time, his mother never looked after him and he felt this was the woman to look after him'. He did not love her then but 'she has turned out to be a wonderful wife, and they have done everything together'. In 10 years they have paid off their home and they have nearly paid off their car. He has adopted her son, who knows no other father. They are extremely happy. Though married in court, he is not disturbed by this fact. They are both working. In the morning he gets up, makes the bed and tidies most of the house. They then both go off to work. He has no tea or breakfast, 'does not want any'. He gets home earlier than she does. He tidies the rest of the house and then prepares the dinner from supplies which she has laid in.

The wife does all the mending and similar household duties. She controls the finances. He gives her his cheque and she gives him pocket money and what he does not spend he returns to her. Up to 2 years ago their sexual adjustment was satisfactory. Coitus took place once or twice a week. For the first two years she did not seem satisfied; then, at her suggestion, they tried 'upside down', which she preferred. They have continued thus, 'if she preferred it that way—well all right'. There is no issue. She has had about 6 doubtful miscarriages. He is very keen to have a daughter. He likes to wander about naked. On two occasions he did this before two young female boarders, but desisted when his wife remonstrated with him. He has listened to the chatter of the men at work 'talking sex'. This usually disgusts him and he walks away, but he also feels that his virility suffers by comparison with theirs. There has been no formal sex instruction nor has he read anything on the subject. He has been extremely healthy. His wife blames an electrocution in 1952 for his impotence. He is very temperate in his habits.

Personality. 'I think I am a normal person, just like everybody else. I do my job of work and I've got my home. I don't worry about things—worry for about 5 minutes, then forget about it. Why worry, to-morrow is another day. Why should you, it never gets you anywhere. My wife does all the worrying; she's a worry-pot. I do not need any help from anybody. My wife and I will battle through by ourselves.' He is very friendly with all at work. He makes friends easily, gets on very well with them, likes to be helpful and does

so cheerfully. But he will not invite any of his 'friends' to his house—'You never know what you may bring into your home'. He is an energetic worker, likes to get his job done and he must do it well because he does not want the boss to pick him out. He is very particular about personal cleanliness. He must bath as soon as he gets home and both he and his wife will bathe before having intercourse. He is fairly religious, but he has not been to confession since his divorce. He is not disturbed by it. 'I've got a belief that there must be a reason why I am here—what it is I don't know—but things will work out for the best.'

Investigations. A sperm count showed a low percentage of motile forms and a high percentage of abnormal forms of spermatozoa. All the other investigations, viz. full blood count, Ide test, fasting blood sugar, 17-ketosteroids, lumbar puncture, cerebrospinal fluid and radiography of the skull, gave normal results.

Diagnosis. Psychogenic impotence in a sub-fertile male of low average intelligence, with an inadequate, passive, dependent personality.

Dynamic Assessment. The patient has basically an insecure personality. There is the background of a rejecting mother and alcoholic father. The environment is regarded as hostile and, where he can, he will withdraw. He was an asocial child, afraid of people and had a speech difficulty. He was more backward at school than is warranted by his I.Q. He was bullied by the bigger boys but did not retaliate. Later he identified himself with the 'underdog' and protected the smaller boys. He would always try to be helpful and he always sought to appease and ingratiate. At present, he still sees the environment as hostile. When forced to, as in the work situation, he will put on a bluff exterior and will get on well. He still strives to please and will appear and ingratiate. But he will limit these contacts to work and will not allow his friends into his home. He must give of his best to avoid any disapproval or dismissal. He stands in relation to his wife as a son to his mother. Up to the time of his breakdown he had come to terms. Then came the break with his mother. The resentment against the maternal figure which had remained unexpressed is brought out in his having to take sides between his wife and his mother. The hostility has now found expression, but the resultant guilt gives rise to resentment towards the wife who has precipitated this guilt, and also because he has lost the refuge of his mother in case he should be

rejected by his wife. This resentment cannot find expression because of this fear of rejection by the female figure and it finds expression instead in his impotence.

Progress. He settled down well at the hospital within the first week. His friendly co-operative mien made him popular with patients and staff but he was extremely reticent about himself. This was his attitude at interviews at first, but he soon discussed personal matters freely. Quite a marked degree of dependence on his therapist developed and he constantly sought his guidance and approval in his conduct about the hospital. (He was Ward Representative after 2 weeks). The patient was allowed to go home each week-end and on his fifth week-end he reported that coitus was successful and satisfactory. He continued to have improved and satisfactory sexual intercourse each week-end and by the end of the next month was cohabiting twice during his week-end leave. He was then discharged.

Review. The patient has improved. He has no insight into the dynamics of his impotence but he has found in his therapist a non-critical accepting father figure—one who has allowed him to express his resentment without moral censure and who has given him the security and guidance he has sought.

DISCUSSION

CLASSIFICATION

(a) **Primary: Functional Impotence** (*Bergler⁴*). By the term "psychogenic disturbance of potency" we understand a central inhibition which is manifested locally in the penis. This inhibition may have the following effects:

1. Absence or inadequacy of erection, rendering insertion itself and consequently the whole of coitus impossible—*erective impotence*.

2. Emission at the approach of the penis to the vulva in spite of lack of or insufficient erection—*ejaculatio ante portas*.

3. Premature ejaculation—*ejaculatio praecox*.

4. Delayed ejaculation (from half to one hour)—*ejaculatio tarda*.

5. Absence of emission in spite of prolonged intercourse—*ejaculative impotence*.

6. Absence of normal orgasm in spite of insertion and normal ejection—*intercourse without any particular pleasure*.⁽⁴⁾

(b) **Secondary: Organic Impotence.** This accounts for about one-tenth of all cases and may be secondary to a number of causes.

1. **Lesions of the Genital Tract.** These may be congenital malformations, follow trauma, be due to acute or chronic infections or the result of new growths.

2. **Lesions of the Central Nervous System.** Paralytic impotence may occur from damage to the cerebral cortex, to the lumbar centres or to the peripheral nerves.

3. *Systemic and Generalized Conditions and Intoxications.* All diseases have some effect on desire, either a temporary loss or an insidious diminution in virility. With drug addiction, impotence may be due to an underlying personality disorder, i.e. primary or due to the debilitating or toxic effects.

4. *Endocrinopathies.* There is probably some potency disturbance in every endocrinopathy. Variation will mainly be dependent on the gland most involved.

5. *Psychogenic.* Though impotence is primarily psychogenic in nature, it may well be a secondary feature of psychological illness, as shown by the loss of libido in endogenous depression.

(c) *Physiological Impotence.* Impotence which may often occur in males between the ages of 30 and 40. There is no apparent cause, it lasts a variable period (from a few weeks to a few months) and recovers spontaneously, apparently as a physiological phenomenon.

PHYSIOLOGICAL MECHANISMS

The introduction of sperms into the vagina involves erection of the penis and ejaculation (emission) of seminal fluid. Both processes are fundamentally reflex in character and occur quite efficiently in a spinal man following stimulation of the glans penis or related skin areas.

In the intact man any or many of the sense organs may constitute a source of appropriate afferent impulses; the response is long-circuited through the brain and involves the activities of the highest cortical levels which can modify the reaction either by way of reinforcement or inhibition. There is no need to stress the importance of psychological influences and especially of emotional states on the act of intercourse. The results of castration show that the reflex arcs are influenced at some point by the internal secretion of the testis.²

Animal experiments suggest that the anterior pituitary gland is responsible for the sexual drive but the gonad is essential for its completion. Some eunuchs and eunuchoids may copulate in some degree and prove unreliable 'guardians of the couch'. The secretion of testicular androgens seems to be the essential factor to full potency. Androgens are secreted by the adrenal cortex in normal males and eunuchoids, but most eunuchoids are impotent, so the adrenal androgen would seem less potent than the testicular. Nevertheless, the sexual precocity of adrenal tumours is a very virile phenomenon.⁶

What is Normal Potency? Strauss maintains that extreme feebleness of sexual desire, amounting almost to abstinence, can be congenital and is compatible with perfect physical and mental health, a vigorous intellect and normal endocrine patterns. The converse is

equally true. Some men have such strong sexual needs as to be almost insatiable in the absence of any morbid determinants. In other words, strength or feebleness of sexual desire is congenitally determined. The same is true of duration. The waning or extinction of sexual desire is also genetically determined in the same way as, e.g. longevity. Virility and impotence cannot be equated nor is the size of the genitals an index of virility and sexual vigour. In fact the converse seems to be the rule.⁶

As much of the discussion must evolve about premature ejaculation, what should be regarded as normal duration? Kinsey states:

... at lower educational levels, it is usual for the male to try to achieve an orgasm as soon as possible after effecting genital union. Upper level males more often attempt to delay orgasm. For perhaps three-quarters of all males, orgasm is reached in 2 minutes after the initiation of coitus ... This quick performance of the male may be most unsatisfactory to a wife who is inhibited or naturally low in response, as many wives are. . . . Considering the many upper level females who are so adversely conditioned to sexual situations that they may require 10 to 15 minutes of the most careful stimulation to bring them to climax and considering the fair number of women who never come to climax in their whole lives, it is of course demanding that the male be quite abnormal in his ability to prolong sexual activity without ejaculation if he is required to match the female partner.

Interpretation of human behaviour would benefit if there were a more general understanding of basic mammalian behaviour. On the present instance it is to be emphasized that in many species of mammals the male ejaculates almost instantly upon intromission, and that is true of man's closest relatives among the primates. (Among chimpanzees, for instance, it takes 10 to 20 seconds.) Far from being abnormal, the human male who is quick in his sexual responses is quite normal among mammals and usual in his own species. It is curious that the term impotence should have been applied to such rapid response. It would be difficult to find another situation in which an individual who was quick and intense in his responses was labelled anything but superior, and that in most instances, is exactly what the rapidly ejaculating male probably is, however inconvenient and unfortunate his qualities may be from the standpoint of the wife in the relationship.⁵

If the man can ignore the sexuality of his partner in the marital situation, this prematurity would not interfere with his satisfaction and by definition he would not be impotent. But one can ill-afford to ignore the cultural aspects of these problems. One cannot ignore the rights of emancipated women as recognized by our culture, however inconvenient and unfortunate it may be from the standpoint of the husband in the relationship. Many patients who present themselves do recognize the reciprocal needs of both partners in the sexual situation under consideration, and only

in the failure of the spouse to reach orgasm is the dissatisfaction felt.

HOW DOES THE NORMAL BECOME AFFECTED?

(a) *Primary or Functional Impotence.* There are literally hundreds of variations of psychical potency disturbances:

Group I: Of Sudden Onset and Brief or Limited Duration. The main factors are anxiety and fear, novelty and ignorance or fatigue. It is a convention, and an extremely bad convention, for a married couple to seek to consummate their marriage on their wedding night. Both are usually tired, excited, anxious and self-conscious and, even in these times, ignorant and inexperienced. Often these factors render a man impotent or excitement may cause him to ejaculate long before he can effectively penetrate. Ignorance of the desirability of using a lubricant before attempting to rupture the intact hymen may also give rise to failure to penetrate, as may the fear of hurting the loved one. Ignorance of sexual topography and the absence of the female guiding hand (the female often unaware of the part she has to play) may give rise to clumsy fumbling around and collapse of the erection. The unfortunate husband feels miserable and humiliated at his failure. On the next occasion, to the triad of innocence, ignorance and inexperience are added fear and self-observation sufficient to render him impotent or to cause premature ejaculation. With increasing anxiety and increasing failure the male partner is to soon convinced that he is impotent. Often he is too timid or humiliated to seek medical advice and all too frequently the doctor whom he consults is too busy or insufficiently instructed to be able to offer any helpful advice.⁶

'The technique, courtesies and aesthetics of sexual intercourse are matters of outstanding importance, yet they are never taught by the physiologists and rarely discussed adequately at any stage of the medical curriculum.'²

A male may fail, either from fatigue or boredom, to consummate the sexual act satisfactorily. In our culture a man may not refuse to accede to his partner's desire. This failure may well rouse anxiety, fear and scrutiny of the act with further failure.

Group II: Impotence with a Female Partner who is Loved or Respected. In these cases there is an incomplete fusion of the somatic and affective components of the sexual complex. Such psycho-sexual immaturity often leads to a partially or wholly unconscious division of womanhood into 2 artificial categories:

'nice' women and 'fast' women. It is permissible to love nice women in an idealistic way, but they are sexually taboo. These women are equated in the male's mind with his mother or his sister. A mother fixation and a sister fixation are very real concepts and not Freudian whimsies. 'Fast' women comprise prostitutes, barmaids, chorus girls and unfaithful wives—such women are sexual beings and nothing else, fit for sexual intercourse but not for love. Such psycho-sexually immature men usually marry 'nice' girls and find themselves impotent with their wives.

Group III: Of Slow Onset and Long Duration. The main factors are the evocation of unresolved conflicts with the mother figure particularly in a passive dependent male. It usually follows the death of the mother or often a quarrel between mother and wife and a new orientation and identification of the role the spouse now fills.

Group IV: Primordial Impotence and Perversions. This group contains those severely maladjusted men who never achieve a normal psycho-sexual relationship. 'They persistently act out the conflicts pertaining to the Giantess of the Nursery.'

A male who is so constituted that he can only find sexual outlet in a homosexual relationship or other perverse acts might well find himself impotent in a normal heterosexual relationship.

On the fringe of this Group one finds those maladjusted men who use sexual intercourse as a defence mechanism against these perverse drives or against a threat to their potency due to unresolved conflicts as described in Groups II and III. They present a picture of hypersexuality. Acts, apparently sexual, serve defensive purposes. They may aim at contradicting the existence of perverse sexual goals by stressing the normal ones or at denying inhibitions and combating anxieties and guilt feelings usually by satisfying a need for reassurance. They may even feel a certain sexual pleasure, but never the complete relaxation of full orgasm. This increases their need for reassurance and also presents a goal in itself. They have another preventive trick of refusing to wait for the inevitable sexual fiasco and move from woman to woman. They are in constant flight from potency disturbance and have a preventative device which serves to postpone the manifestation of their hidden impotence.

Sexual intercourse involves the establishment of an interpersonal relationship; as long as they can disclaim the relationship as an expression of themselves and where it is

merely the satisfaction of the sexual appetite, they may well succeed, not unlike the stammerer who can recite 'borrowed' lines without difficulty.

(b) *Secondary or Organic Impotence.* Lesions of the genitalia can disturb the mechanics of intercourse because of pain, under-development or mechanical interference; or else, by affecting the testes, create an hormonal insufficiency.

Impotence is a common feature of neurological disease. When the higher centres have been damaged, it is likely to be overshadowed by other signs and symptoms. This would also be the case where the cord is mainly affected, but in peripheral neuritis it may be the presenting symptom.

As stated previously, all diseases (acute and chronic) have some effect on desire, either a temporary loss or a slowly diminishing potency. Anaemia and debility cause an insidious diminution in virility. Impotence is the common, often the presenting symptom of chronic liver disease, and is due to the failure of the liver to detoxify oestrogens. Oestrone therapy *per se* is often culpable.

Endocrinopathies probably account for most cases of organic impotence. Castration causes impotence, a loss of libido and genital atrophy. Improvement on testosterone therapy, even after 20 years, shows that it is due to a lack of testicular hormone. Eunuchoidism, sometimes congenital, most commonly follows mumps, but may be caused by typhoid or tuberculosis or follow bilateral herniorraphy. Eunuchoids are usually completely impotent, but may be partially potent, depending on the degree of testicular activity. In diabetes mellitus impotence may be associated with malnutrition, peripheral neuritis, arteriosclerosis, disturbed metabolism or disturbance of interglandular relationship. It is a symptom of this disease which has often been ignored or overlooked. Modern observers, however, stress the commonness of impotence as a symptom and that it is often the presenting complaint. Furthermore, the response of the impotence when the diabetes is controlled by diet or insulin or both is disappointing. In Addison's disease, too, impotence occurs despite appropriate and effective therapy, whereas in thyrotoxicosis and myxoedema it improves as the disease improves or with treatment.⁷

Incidence. Strauss remarks: 'I find it hard to credit, but a colleague of mine in general practice only the other day told me that some 40% of his married men patients complain of impotence to a greater or lesser extent.'⁶ If we consider the statement from Kinsey's

report, 'For perhaps three quarters of all males orgasm is reached within 2 minutes after the initiation of the sexual act and for not an inconsiderable number the climax may be reached within less than a minute or even within 10 or 20 seconds', the general practitioner may well be conservative in his estimate. For every case of impotence due to endocrine disturbance, 9 were due to psychogenic causes.⁷

The differential diagnosis between organic and functional impotence is easily made. If the male masturbates successfully or if he has nocturnal emissions or early morning or nocturnal erections, then the impotence is psychogenic.

TREATMENT

Each individual case will call for general measures, local treatment or specific therapy, as is indicated. As sexual vigour varies with general health, all methods of treatment that increase bodily efficiency are likely to exert a beneficial effect on virility.

The whole pharmacopoeia has been searched for a cure for impotence. Doubtful claims have been made for some drugs, mainly yohimbine, strychnine and tonics. Local anaesthetics to the glans penis have been efficacious in the treatment of premature ejaculation, especially if given with a sedative. Organotherapy, where indicated (mainly testosterone and, to a lesser extent, thyroid) has staked an irrefutable claim as a therapeutic measure. Operative treatment is effective in the repair of congenital anomalies and the removal of new growths. The inventiveness of the surgeon has developed several ingenious procedures, testicular implants, (Steinach) vasoligature, cauterization of the veru montanum and shortening of the ischiocavernosus and bulbocavernosus muscles (Lowsley-Bray) are not without success. Another ingenious device is the coital training apparatus.

Psychotherapy must play an all-important part in every case of impotence. The discussion of sexual habits and attitudes requires a sympathetic understanding and an accepting atmosphere. In secondary impotence, factors of anxiety, humiliation, fear and self-scrutiny (which in themselves require treatment) may well render a minor disability a major affliction. Cases which fall into Group I usually do well with reassurance, guidance and advice. Cases in Groups II and III require more intense therapy. Re-education and a change in attitude are needed. Insight is not a necessary criterion for a satisfactory psychotherapeutic result, as borne out by the case pre-

sented. Experience and fulfilment and re-orientation in terms of this experience and fulfilment can lead to improvement and readjustment, and therapy may well be directed to this end. Primordial impotence presents a serious challenge to any psychotherapist. Treatment cannot be undertaken lightly and success is sorely won. Bergler, who claims good results with psycho-analysis, reports cures in 75% of his cases.⁴

OPSUMMING

Die oorsake van impotensie word geklassifiseer en bespreek.

Verslag word gedoen oor 'n geval waar die impotensie gediagnoseer is as psigogen. Dit het voorgekom by 'n sub-fertiele man van lae gemiddelde intelligentie met 'n ontoereikende, passiewe, afhanklike persoonlikheid.

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ANTERIOR SPINAL ARTERY THROMBOSIS

A REPORT OF TWO CASES

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Two cases, which had very similar histories, each presented signs and symptoms of amyotrophic lateral sclerosis. Each had an acute onset following trauma, and both have recovered to a great degree. A diagnosis of thrombosis of the anterior spinal artery was made.

CASE 1

Mrs. de P., aged 56 years, was perfectly healthy until 1953. As a farmer's wife she assisted in loading and unloading goods and driving a 2-ton truck, tasks she could manage without any difficulty.

During 1953 she developed a pain in her left shoulder and back which was variously diagnosed as arthritis, neuritis and fibrositis. It became so severe that in August 1954 she was admitted to hospital and underwent spinal manipulation under general anaesthesia. When she recovered from the anaesthetic, she found that both her arms were paralysed, as was her neck. She was quite unable to move her arms or to lift her head from the pillow. A diagnosis of amyotrophic lateral sclerosis was made. For this she received physiotherapy and vitamin E. She started to improve gradually, eventually being able to walk, but still with great difficulty. A complete neurological investigation, including myelography, was

negative. A poor prognosis was given to the relatives.

On admission to Tara Hospital physical examination revealed atrophy of muscles of the shoulder girdle, upper arm, forearm and hand, more pronounced on the left. The atrophies were maximal at the shoulder, diminishing towards the forearm and then becoming severe again in the thenar, hypothenar and interossei muscles. All movement was very weak at the shoulder and elbow, and extension of the wrist. Flexion of the wrist and fingers was preserved best.

The paresis was flaccid, with reflexes absent in the arms. The neck muscles were also very weak; her head flopped about on attempts to raise it. Atrophy here was also severe. The extensor trunk muscles were weak. Abdominal reflexes were absent. In the legs there was hypertonicity with fairly good power. The reflexes were hyperactive and there was a left extensor plantar response with knee and ankle clonus on the left.

Sensation, bowel and bladder functions were normal.

CASE 2

Mr. A., aged 48 years, a wood machinist, had to use his arms and legs a great deal. He

had never complained that either were weak until his 'accident' on 21 January 1956.

He had that day been celebrating the birth of his granddaughter and had drunk a great deal of alcohol. (He was, and had been for many years, a heavy drinker). While eating a peach, the pip stuck in his throat. His daughter gave him a resounding slap on the back to help him, but he slipped, fell down a short flight of steps and lay still.

This happened on a Saturday afternoon and it was only at 7 p.m. on the Sunday that he was sent to the General Hospital. His family possibly thought this was another of his 'comas', as he was a heavy week-end drinker.

At the Out-Patient Department he complained of generalized pains, and still smelt of alcohol. His neck and head were X-rayed and he was sent home.

When he 'came to' he found that his arms and legs were very weak, especially on the left. When he tried to walk his legs gave in beneath him and his arms were so weak that he could not lift a cup. He stayed in bed for 7 days and once again attended the Out-Patient Department, when arrangements were made to send him to Tara Hospital. A bed fell vacant 7 days later, so he was seen 2 weeks after the fall.

Examination revealed the following:

Motor System: In the arms there was muscular fasciculation over the pectoralis major, deltoid, supraspinatus, infraspinatus and thenar muscles.

There was atrophy of most muscles of his arms, maximal toward the periphery and more on the left side. Weakness was present in all the movements at the shoulder, elbow, wrist and fingers, maximal distally. Tone was decreased on both sides and all reflexes were hyperactive, more so on the left. The neck and trunk were normal, with abdominal reflexes on the left side low and diminishing easily. There was no atrophy of the legs.

Tone was increased on both sides. Power was normal on the right but on the left there was weakness of flexion at the knee, of flexion and extension, inversion and eversion at the ankle, and of flexion and extension of the toes.

Reflexes were all very hyperactive, more so on the left, with clonus at the left knee and ankle and bilateral extensor plantar responses.

Cranial Nerves. Intact.

Sensation and Autonomic Function. Intact.

The rest of the physical examination was normal, and special investigations (including blood count, urine analysis, blood Wassermann reaction) were normal. X-ray of the cervical

spine showed mild narrowing of disc spaces between C4 and C5 and between C6 and C7, with mild osteophyte formation in these areas.

In both cases the brunt of the damage had fallen on the anterior horn cells and the pyramidal tracts in the cervical region. The syndrome of amyotrophic lateral sclerosis had been the result. With the history of the acute onset following trauma, one can surmise a vascular occlusion of some sort, most probably thrombosis of the anterior spinal artery.

ANATOMY OF SPINAL CORD BLOOD SUPPLY

Standard textbooks state that the vertebral arteries (before they unite to become the basilar artery) give off 2 small branches in front which join to form an anterior spinal artery; and 2 branches behind which form 2 posterior spinal arteries. These descend to the level of C4 or C5, i.e. the beginning of the cervical enlargement, and here the blood supply is taken over by lateral spinal arteries which come in through the intervertebral foramina, divide into anterior and posterior branches which follow the anterior and posterior roots respectively and form or contribute to the anterior and posterior spinal arteries (Fig. 1).

The anterior and posterior spinal arteries then form an anastomosis around the cord constituting the corona, from which branches run deep into the substance of the cord. From the anterior spinal artery there develops the anterior median or sulcal artery which runs into the anterior median sulcus and supplies a large part of the interior of the cord, viz. the anterior horns, the pyramidal tracts, the grey commissure, the lateral horns and the column of Clark and Stilling. The spinothalamic tracts and those of Goll and Burdach are supplied by small arteries from the corona (Fig. 1C).

The venous drainage corresponds to the arterial supply, except that there are 2 anterior veins and 2 posterior veins; also, the anterior sulcal vein drains all the areas that the artery supplies (Fig. 1B) except the lateral columns and the column of Clark and Stilling.

Recent work, however, has shown several differences from the foregoing description.

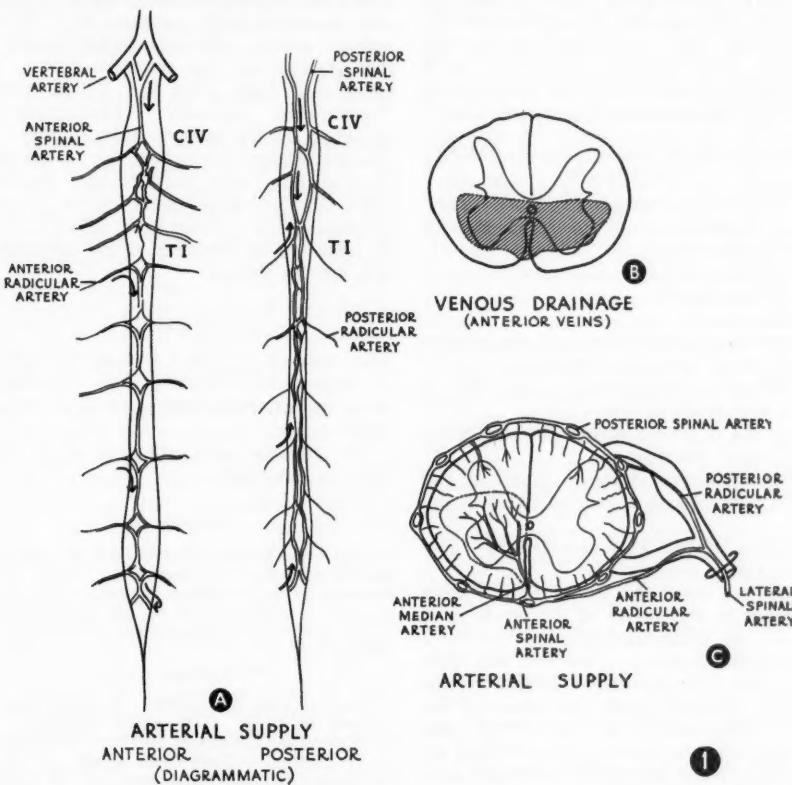
1. The lateral spinal arteries, when dividing, do so very irregularly. Bolton found only 6—8 anterior radicular arteries coming off but 25 or so posterior radicular arteries giving the posterior part of the cord a better blood supply.

2. The radicular arteries, when dividing, do

so by giving off a smaller superior branch and a larger inferior branch. Studies have shown that the flow of blood was from above downwards on the anterior surface (Fig. 1 A), and

the anatomy is correct, it would cause only unilateral signs.

The veins, however, drain both sides and also a lesser area (i.e. excluding lateral



the flow continued at the end of the cord around to the posterior surface. Thus the flow, posteriorly, was from below upwards up to the cervical enlargement, where it met with the downward flow from the spinal arteries originating from the vertebrals (Fig. 1 A).

It was also stated that compression of the anterior spinal artery resulted in such a reduction of flow in the posterior vessels as to cause ischaemic changes posteriorly at the cervical enlargement.

3. The anterior median arteries supply only one side of the cord and not both sides. There are some 200 of these, and as the cord is about 450 mm. long, each one supplies less than one segment of the cord, and on one side only. It was once postulated that in the syndrome of anterior spinal artery thrombosis there was in reality thrombosis of a median vessel, but if

columns and the columns of Clark). This suggests that in some of the clinical syndromes of amyotrophic lateral sclerosis, there may well be a venous rather than an arterial compression, as this would account for the lack of sensory and autonomic symptoms.

4. Between C6 and T2 one finds very poor arterial anastomosis and many arterial abnormalities. This is the region of the cervical enlargement and it is here where most cases of anterior spinal artery thrombosis occur.

It is difficult to correlate pathology with anatomy in this region, but several points of interest emerge.

- i. The cervical enlargement has a rather irregular and a poor anastomotic blood supply and it is here that thrombosis most commonly occurs.
- ii. For both sides of the cord to be affected

by ischaemia, the anterior spinal artery must needs be occluded; a small occlusion affecting only that area supplied through the anterior median artery would leave the spinothalamic tracts intact, as they get a supply through the corona. Larger thromboses will include the spinothalamic tracts; or it may be that the thrombosis is of a lateral spinal artery or of the anterior radicular artery, as there are so few of these and their anastomoses are poor.

PATHOLOGY OF ANTERIOR SPINAL ARTERY THROMBOSIS

Three types of pathology are found acting singly or together, as is in common with thrombosis elsewhere.

- (1) Syphilis.
- (2) Arteriosclerosis.
- (3) Trauma.

The syndrome of thrombosis of the anterior spinal artery as described consists of:

- (a) *Anterior horn damage*: Atrophies of muscles with fasciculations.
- (b) *Lateral column damage*: Bladder, bowel and vasomotor disturbances.
- (c) *Pyramidal tract damage*: Spasticity and increased reflexes with a positive Babinski and clonus.
- (d) *Spinothalamic tract involvement*: Sensory loss with a sensory level.

As has been noted, this would mean a rather large extent of thrombosis of the artery so as to include the spinothalamic tracts. In the 2 cases described, however, it was seen that there were no sensory or autonomic defects, yet the thrombosis involved nearly the whole of the cervical enlargement. In the second case, fasciculations in the muscles of the C5 and C6 segments myotome and the T1 myotome were seen. One could either postulate a very good coronal anastomosis, a lesser effect from ischaemia, or (as was previously postulated) interference with the venous drainage rather than with the arterial supply.

Syphilis and arteriosclerosis produce their effects by a slowing and diminution of blood supply from an endarteritis and finally a superimposed thrombosis. Up to the middle 1930's, most cases of anterior spinal artery thrombosis were associated with a positive blood Wassermann reaction. The conclusion drawn was that syphilis was the causative factor. One series of 7 cases cited had 5 with positive Wassermann reactions. Experiments on occlusion of the anterior spinal artery show that the earliest damage occurs in the larger (anterior horn) cells and the larger myelinated fibres (the pyramidal tracts and the posterior columns). The anterior horn cells seem to be the easiest to be damaged in any condition, as also seen in trauma.

SUMMARY

Two cases are presented showing the syndrome of amyotrophic lateral sclerosis following an acute trauma, both tending to rapid improvement.

The anatomy and pathology of the condition are described.

OPSOMMING

Verslag word gedoen oor twee gevalle, albei waarvan die sindroom van amiotrofiese laterale sklerose volgende op 'n akute letsel geopenbaar het, en albei waarvan 'n neiging getoon het om vinnig te genes.

Die anatomie en patologie van die toestand word beskryf.

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SOME NEURO-OPTHALMOLOGICAL AFFECTIONS OF THE OPTIC DISC

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PAPILLOEDEMA AND OPTIC NEURITIS

Oedema of the optic disc can occur in 4 conditions:

1. *In generalized oedema of the retina*, such as occurs in hypertensive retinopathy, renal

retinopathy and thrombosis of the central retinal vein, the retinal oedema may spread to the tissues of the optic disc.

2. *In localized oedema of the retina*, adjacent to and involving the optic disc by direct

spread, such as occurs in choroiditis. A choroiditis adjacent to the optic disc is distinguished by the name of Jensen's juxtapapillary choroiditis.

3. *A localized active and acute inflammatory lesion of the optic nerve head, or of the optic nerve itself immediately behind the eyeball, such as occurs in optic neuritis involving the optic nerve head or the anterior part of the optic nerve.*

4. *An increase of pressure within the sheath of the optic nerve can cause swelling of the optic disc. This is a purely passive process, and is due to the increased pressure in the optic nerve sheath which then interferes with the venous return from the eyeball. The vast majority of these cases is due to raised intracranial pressure, while a minority is caused by a localized space-occupying lesion of the orbit.*

NOMENCLATURE

There is still considerable confusion about what is meant by the term 'papilloedema'. Some regard it as implying oedema of the disc due to raised intracranial pressure only; others regard it more generally as implying oedema of the disc, no matter what the cause.

Originally, a swelling of the nerve head was called 'optic neuritis'; if the swelling were great it was called 'choked disc', which was merely an exaggerated degree of optic neuritis. Parsons¹ in 1908 introduced the term papilloedema. Its application was limited to refer to cases showing 'more than 2 dioptres of swelling associated with raised intracranial pressure'. Cases showing less swelling were called papillitis. Paton and Holmes² clarified the position in 1911 in their classical paper and they differentiated two main categories. They defined *papilloedema* as a 'passive oedema due to raised intracranial pressure without primary inflammatory changes and often without disturbances of function' and *optic neuritis* as 'a swelling of the disc associated with inflammation and loss of function'. The two conditions have a different etiology, pathology, symptoms and sequelae but in the early stages a clinical differentiation between the two may be extremely difficult.

PAPILLOEDEMA

Duke-Elder³ states that cases of papilloedema may be sub-divided into two classes:

- (a) A more common type due to raised intracranial pressure occurring in a healthy eye and in which the oedema is circumscribed within the immediate area of the disc (plerocephalic oedema); and
- (b) A rarer group in which the retina shares in

the oedema which is therefore more diffuse, as may occur, e.g. in thrombosis of the central retinal vein or renal retinopathy.

Lyle⁴ prefers the term plerocephalic oedema introduced by Traquair in 1946 to indicate oedema of the disc due to raised intracranial pressure for the reasons stated. He also quotes Wolff to support his argument. The latter pointed out that the optic disc under normal conditions lies in the same plane as the retina and does not form a projection, as the name papilla would lead one to suppose.

Diagnosis of Papilloedema. Mistakes are frequently made in the diagnosis of plerocephalic oedema. The tendency is to err on the side of calling a doubtful case papilloedema in fear of missing an early case and thus delaying treatment. Because of this tendency, however, many patients with normal discs have been subjected to unnecessary investigations, including lumbar punctures, ventriculography and electroencephalography. Naturally, failure to detect obvious oedema of the discs would be regarded as gross incompetence, but in a border-line or doubtful case is it not advisable to wait a few days and watch for progress of signs rather than to embark on a train of investigations which may not only have an adverse psychological effect on the patient and his relatives but in some cases may not be entirely free from danger?

The earliest signs of plerocephalic oedema are:

1. *Increased redness of the disc.* As the normal colour of the disc varies enormously in different patients, this sign may be difficult to evaluate.

2. *Blurring of the disc edges.* There is no general agreement where the blurring commences. Most authorities state that it begins at the upper and lower poles, then spreads to the nasal margin, finally involving the temporal margin. All are agreed that the temporal margin is the last to become involved.

3. *Grey streaks along the central vessels, due to oedema of their sheaths.*

4. *Engorgement of the veins* so that the ratio in calibre between veins and arteries, normally 3:2, increases to 4:2 and even 5:2. Transient loss of vision, lasting for 5-20 seconds (obscurations) may occur, as may an increase in the size of the blind spot when the fields of vision are done. The diagnostic value of this latter sign is not great. On the other hand, there may be no ocular symptoms whatever.

It is the ophthalmologist's duty, when confronted with a case showing apparent oedema

of the disc, to exclude simulating conditions. Apart from the conditions mentioned, which cause real oedema, there are a few conditions which give the appearances of optic disc oedema.

1. *Pseudo-papilloedema*, a congenital abnormality in which the optic nerve fibres on the disc are heaped up on the disc to form an elevation, may occur in normal as well as hypermetropic eyes. There are no haemorrhages or exudates, no enlargement of the blind spot, and no venous engorgement. The elevation may be further accentuated by an excess of neuroglial tissue on the disc, the remains of the embryonic Bergmeister's papilla.

2. *Opaque nerve fibres*, another congenital abnormality of no pathological significance, if it involves large portion of the circumference of the disc may be mistaken for true oedema of the disc. The condition is due to distal extension of the medullary sheath of the optic nerve, which normally stops at the lamina cribrosa, into the eyeball itself.

3. *Hyaline bodies (drüsen)* of the optic disc are rare but present a striking picture and in some cases suggest the appearance of oedema. They are caused by the deposition of a hyaline-like material due to some local metabolic disturbance of unknown and probably varied etiology.

OPTIC NEURITIS

This term implies involvement of the interstitial portion of the optic nerve as the result of inflammation, demyelination or degeneration. Usually there is selective involvement of the papillo-macular bundle in the optic nerve, and it was to this group of lesions that Ronne gave the term retrobulbar neuritis. The cardinal symptom is loss of vision, the cardinal sign a central scotoma.

The optic disc may present 3 different pictures, depending on the level of involvement of the pathological process. It may be normal, if the lesion is proximal to the point where the retinal vein leaves the optic nerve. It may be oedematous, if the lesion affects that portion of the optic nerve containing the retinal vein. It may be inflamed, if it involves the intra-optic portion of the nerve. In the latter two cases, the ophthalmoscopic picture may resemble pterocephalic oedema in its early stages. The differential diagnosis presents a difficult problem in the early stages. The difficulty is extreme when the optic nerve is involved in that portion of its course containing the retinal vein, as oedema of the nerve head may be massive. The main point of differentiation is the much more profound loss of sight in optic neuritis, a loss which is sudden, intensive and may even precede ophthalmoscopic changes. Venous engorgement and haemorrhages are usually less marked in papillitis and the degree of swelling is rarely above 2 dioptres.

The loss of sight in optic neuritis is due to a central scotoma, which results from interruption of the papillo-macular bundle in the optic nerve. The causes of optic neuritis are many and varied and it is not proposed to enter into a discussion on this subject. Optic neuritis occurs in many diverse conditions, ranging from the demyelinating diseases of the central nervous system to exogenous toxins.

OPTIC ATROPHY

Following a lesion of the optic nerve, there is destruction of nerve fibres and the development of optic atrophy. Atrophy of the nerve also follows lesions of the retina, in certain circumstances. Thus there may be 'descending' atrophy in which atrophy progresses towards the retina, or 'ascending' atrophy in which the nerve fibres atrophy towards the brain. Descending atrophy proceeds from the region of the optic tract, chiasma or posterior portion of the optic nerve towards the disc. It may be complete or incomplete, and is much slower in its development than is ascending atrophy. It is always more pronounced when the lesion causing it is close to the globe. If the lesion is some distance from the nerve head, it may take months or years to develop, and so account for the normal looking appearance of the optic disc in some cases.

It has been customary in the past to describe optic atrophy strictly on the basis of the appearance of the optic discs as primary or secondary. This tends to be misleading because the ophthalmoscopic picture is dependent upon the site of the lesion. Thus, following an intraocular optic neuritis, there is likely to develop a secondary optic atrophy; but following a lesion of similar nature situated far posteriorly in the optic nerve the optic atrophy is primary in type. Duke Elder gives a valuable classification based upon the ophthalmoscopic appearance as follows:

1. *Consecutive Atrophy*. There is a yellow, waxy appearance of the disc and extreme attenuation of the retinal vessels in advanced cases. The rest of the fundus shows an inflammatory or degenerative lesion of the retina and the choroid, such as disseminated choroiditis. The atrophy is consecutive to the destruction of the retinal cells and is therefore ascending in type.

2. *Post-Neuritic Atrophy*. This is characterized by deposition of fibrous tissue on and around the disc. It also is associated with narrowing of the retinal vessels and occurs typically after a long-standing pterocephalic oedema.

3. *Temporal Atrophy.* This type is characterized by atrophy of the temporal side of the disc where the papillo-macular bundle is situated. It is due to involvement of this bundle and occurs characteristically in disseminated sclerosis.

4. *Glaucomatous Atrophy.* This is distinguished by a particularly deep cupping and displacement of vessels to the nasal side of the disc.

5. *Vascular Atrophy.* This is characterized by extreme attenuation of the retinal vessels and occurs typically following embolus or thrombosis of the central retinal artery.

6. *Simple (Primary) Optic Atrophy.* This is characterized by a uniformly grey or white disc with normal edges in an otherwise normal-looking fundus. It is seen in tabes dorsalis and as a result of tumours which interrupt the anterior optic pathways such as pituitary tumours.

The development of pallor of the optic disc requires explanation. The normal pinkish colour of the optic disc is dependent upon the tiny blood vessels which it contains, since the nerve elements are grey. The temporal aspect of the nerve has relatively fewer blood vessels than the nasal aspect and therefore looks paler in normal nerves. In temporal atrophy the temporal part of the nerve loses its normal lustre. Within the central nervous system loss of function is constantly followed by compensatory reduction of blood supply. When the

optic nerve ceases to function, its blood supply is reduced and small vessels, recognizable in the normal nerve, cease to be recognizable. In addition to reduction of blood supply there is formation of glial tissue. These two factors, viz. reduction of blood supply and formation of glial tissue, account for the pallor which is associated with optic atrophy. The pallor of the discs alone is insufficient evidence that optic atrophy is present, since the colour of the disc varies in normal persons. Unless there is recession of the disc or part of it, the diagnosis cannot be made with certainty on ophthalmoscopic examination alone. If, however, there is demonstrable loss of vision and/or demonstrable change in the visual field as well as pallor of the disc, the evidence is incontrovertible.

OPSUMMING

Die terminologie, klassifikasie en oorsake van sommige van die neuro-oftalmiese kwale van die oogskyn word deur die skrywer in oënskou geneem.

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SPECIFIC PSYCHOLOGICAL TENSIONS IN SOUTH AFRICA

H. E. VAN HOEPEN, B.Sc., ARTS (HOLLAND), M.D.

Tara Hospital, Johannesburg

During debates on juvenile delinquency, alcoholism and marriage guidance, it has often been asked whether, in South Africa, any specific factors (not found in other countries), contribute to increased tension in the population. This question was inspired by the startling fact that South Africa ranks in the highest group in respect of its divorce rate, suicide rate and rate of alcoholism. According to a recent statement of the Nederduits Her-vormde of Gereformeerde Kerk, the percentage of the population belonging to sectarian churches in South Africa is also very high, compared with the position in other countries. Is there then anything wrong with the per-

sonality of the South African or can the answer be found in differences in the environment in which he lives?

Man's behaviour is the result of an interplay between two main forces, viz. his biological structure (body and mind) and his environment. The true nature of Man's mind evades us. All we can observe is the action of his mind on the environment; but his behaviour depends as much on his own nature as upon his environment. These two are so inseparable that Man's environment may be regarded as an integral part of his psychology. It certainly determines the phenotype in Man.

Present-day psychology occupies itself largely

with Man's most intimate environment, his relations with his parents, his relatives and close friends, his relations with the people he works with and, naturally, his relations with his God. Far less attention is given to Man's wider environment, the social climate in which he lives. Yet this wider environment must of necessity have a marked influence upon him. Evidence of this can be found in the history of the last few centuries before the great levelling of environments caused by the tremendous increase in communications, wars, revolutions, etc. Profound differences existed between the peasant of old and the nobleman, the mountain and the plain dweller, the farmer and the industrialist, and so on. So marked were these differences that it used to be firmly believed that the child born of nobility, yet reared by peasants, would eventually reveal his true descent. To-day these differences are no longer so marked, but we are often still able to distinguish the farmer from the soldier, the pilot from the pedestrian, etc. Environment has made different phenotypes from these people.

correspond to lower, middle and upper classes (Fig. 2).

Fig. 1 illustrates a number of facts. Unskilled labour consists mainly of non-Whites, and is very large in proportion to the other two sections. The skilled labour and administrative groups consist fairly exclusively of Whites. This means that the White population virtually lacks an unskilled labour group or lower class; and the non-White population lacks a middle and an upper class.

The question now arises whether the division of the population into unskilled labour, skilled labour and administrative groups (as seen in uni-racial countries) is only an economic necessity or whether this depends upon the inherent abilities of the individuals. Each race has individuals who are best equipped to lead their fellow beings, others who have pronounced skills and abilities in doing things and yet others who, under the prevailing conditions, have no specific skills and are best suited to do unskilled labour.

One of the abilities is expressed in the

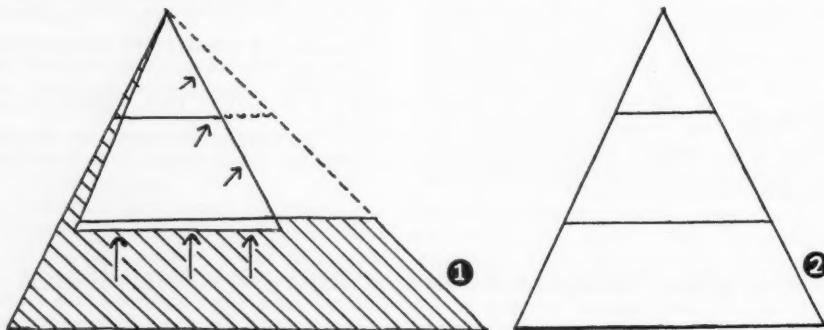


Fig. 1. The shaded area in this figure represents the Native population. The arrows indicate the pressure of this group on the unskilled labour group of the White population, decreasing this to the small section shown which represents protected labour. The dotted area represents the relative deficit in the skilled labour and the administrative groups.

Fig. 2. An average population pyramid, with a fairly small upper class, a larger middle class and even larger lower class.

Can a study of our South African environment give us a better understanding of the South African? For this purpose let us consider the structure of the South African population, best done with the aid of a population diagram (Fig. 1). This very simplified diagram does not claim to demonstrate exact percentages. For our purpose it is sufficient to divide the population into 3 main groups: unskilled labour, skilled labour and business group, and the administrative group. Roughly these would

Intelligence Quotient and is measurable. Fig. 3 shows the average spread of intelligence in the population. Extensive studies all over the world have shown that the I.Q. of an individual is an important factor in determining whether he will be able to finish high school and be able to pass university examinations. The I.Q. may be one of the factors which decides whether an individual will settle in the unskilled, skilled or the administrative group. It is, however, not the only factor.

From this it is clear that the White population in South Africa has no room for its unskilled labour group. Part of this group finds occupation on farms. Apparently 60% of those who go to make their living on farms in South

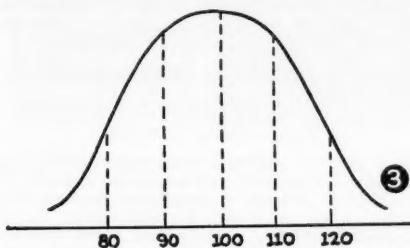


Fig. 3. The natural spread of the Intelligence Quotient in the population.

Africa have not gone further than Standard 6 at school. Another part of this group finds occupation in sheltered employment, e.g. on the roads or in railway employment. The bulk of the unskilled labour group, however, is forced into the skilled labour group and has to fill posts above their ability. This leads to increased tension and a greater possibility of breakdown. Often the result of this position is that a truly skilled worker has to carry the unskilled worker, and cover up for him. This again causes greater strain in the skilled worker, increases his tension and often strengthens his desire to work on his own, even if he earns less that way. In this respect South Africa differs from such countries as England and Holland, where many people perform duties which, in our country, are only done by Africans, without the feeling that they are failures and have to be looked down upon.

Another important aspect of the population diagram of South Africa is the relatively small size of the middle and upper classes, compared with the large bulk of the lower class. There is a definite gap, resulting in a shortage of skilled workers and leaders. This fact is generally known in the Union. One of the results is a diminished competition for better posts and an increased importance of influence. This has a demoralizing effect on society in certain

ways. Another result of the shortage of skilled workers is that a broader education is neglected in favour of a steeper, more specialized one. Youngsters are in a hurry to qualify for a high post, and have no time for 'unnecessary' knowledge and maturity. This again leads to greater instability and vulnerability, causing more tension. Is it not a fact that nearly all matriculants have posts offered to them the moment they have passed their final examination? One wonders if it is the broader general education of the immigrant which so often makes him successful in South Africa at the cost of the South African himself.

The shortage of skilled workers and leaders in our society also has a profound effect upon those occupying such posts. This relatively small group is burdened with a great amount of extra work in an attempt to have matters run smoothly. Compared with a country like Holland, executives in South Africa do a much larger amount of voluntary work, carry a much larger responsibility, act on many more committees and are subject to much more tension than their colleagues overseas. This will be apparent if one lets one's mind wander over all that is done in our country, and realizes the small handful of people responsible for it.

OPSOMMING

Die skrywer oorweeg of spesiale faktore wat nie in ander lande aangetref word nie, bydra tot die verhoogde spanning onder die mense van Suid-Afrika.

Hierdie vraag word gestel omdat Suid-Afrika onder die hoogste groep ressorteer vir sover dit sy aantal egskeidings, selfmoorde en dranksugtiges betref.

Lê die moeilikheid by die persoonlikheid van die Suid-Afrikaner, of moet die antwoord gesoek word in verskille in die omgewing waarin hy woon? Die skrywer illustreer die struktuur van die Suid-Afrikaanse gemeenskap met 'n bevolkingstekening wat die bevolking in drie hoofgroep verdeel, naamlik die ongeskoole arbeiders, die geskoole arbeiders en sakegroep, en die administratiewe groep. Dit stem min of meer ooreen met die laer, die middel en die hoër klasse.

Sekere gapings in die bevolkingstruktuur wat abnormale druk uitoefen en abnormale verantwoordelikhede meebring, word deur die skrywer se ontleding aan die lig gebring.

Sodanige faktore verduidelik miskien gedeeltelik die psigologiese en sosiologiese kenmerke van sekere aspekte van die lewe in die Unie.

NOTES AND NEWS · BERIGTE

Mr. R. A. Fleming, O.B.E., M.B., M.S., F.R.C.S., of Baragwanath Hospital, Johannesburg, has been elected a Fellow of the International College of Surgeons.

Dr. I. R. Yudaken, M.B., B.Ch. (Rand.), M.R.C.P. (Edin.), has commenced practice as a physician at 50 Pasteur Chambers, Jeppe Street, Johannesburg. (Telephones: Rooms: 23-8975; Residence: 44-7732).

CHARLES DARWIN

There is not really sufficient evidence for a firm diagnosis of what was wrong with Charles. The fear of his father is just one illustration of his fear of authority in general. Medically this would be termed 'a phobic anxiety state'. His recurrent attacks of giddiness and vomiting were part of it. This, then, was his illness. But why should a man strong enough to spend 5 years sailing round the world, strong enough on one expedition to be the only man in the party able to go in search of water, become for no apparent reason a chronic invalid? Of the many possible answers to this question, certain ones stand out. First, Darwin was born into a family that was liable to melancholia; and both Charles and his brother inherited this liability. Then there was his work: in effect, it was a defiance of authority. Authority, in the person of his father, he had found frightening. The authority defied by natural selection was infinitely more frightening. To keep up his defiance for 20 years until he finished his work accentuated his illness...

There is a saying—"talent can, genius must". Charles' brother, with all his charm and intelligence,

frittered away his life as a dilettante. . . .

One thing I am certain about. Charles was lucky to have lived and worked when he did, and to have escaped modern diagnosis and treatment; especially treatment. . . . As it was, despite nearly a lifetime of illness, Charles died at 72, a great man. Once when at Malvern taking the cure he noticed Quetelet's quotation: 'No one knows in disease the simple result of nothing being done as a standard by which to judge the effects of treatment'.

(Erasmus Darwin Barlow in *The Listener*, 23 August 1956, pp. 266-7).

TRANSAMINASE ACTIVITY

Serum glutamic oxalacetic transaminase activity was studied in 52 patients with neurologic diseases and found to be elevated in progressive muscular dystrophy, polymyositis and dermatomyositis, and in gangrene of the toes. Amyotrophic lateral sclerosis, progressive muscular atrophy, myasthenia gravis, neuritis and nerve section were not associated with elevation of transaminase activity.

(Siebert, Robert G. and Fleisher, Gerard A. (1956): Proc. Staff Meet. Mayo Clin., 31, 459.

PREPARATIONS AND APPLIANCES

EF-CORTELAN NASAL SPRAY

HYDROCORTISONE FOR NASAL APPLICATION

Composition: Ef-Cortelan Nasal Spray is an isotonic aqueous solution containing:

Hydrocortisone (alcohol)	0.02%
Naphazoline nitrate	0.025%

Thiomersal 0.001% is present as a preservative.

Mode of Action: Hydrocortisone has been shown to be effective for the relief of inflammatory conditions of the nasal passages, when applied to the mucous membranes of the nose in very dilute solutions. Sprayed into the nose, such solutions are brought into intimate contact with the inflamed tissues. Local application avoids the possibility of systemic effects and the low concentration is unlikely to cause irritation. The presence of naphazoline, a decongestant vasoconstrictor, assists the hydrocortisone to exert a maximum effect; the low concentration of this agent minimizes any risk of 'rebound phenomena'.

Indications: Various commonly occurring inflammatory allergic conditions of the nose.

Administration: After removing the screw cap, insert the nozzle into the nostril and, whilst inhaling, quickly and firmly squeeze the plastic bottle. Three sprays into each



removing the screw cap, insert the nozzle into the nostril and, whilst inhaling, quickly and firmly squeeze the plastic bottle. Three sprays into each

nostril are usual for an adult but, for children, one or two sprays are usually sufficient. It may also be dispensed as drops by inverting the bottle and squeezing gently. One to two drops in each nostril every three hours should be sufficient for children, or two to three drops for adults.

The length of treatment with Ef-Cortelan Nasal Spray varies with the condition being treated and the response obtained; unnecessarily prolonged treatment should be discouraged. Where acute infection is present this may need appropriate treatment concurrently.

Pack: Plastic squeeze bottles containing 15 c.c.

Price to the Public: 7s. 9d.

Sole Distributors: Glaxo Laboratories (S.A.) (Pty.) Ltd., P.O. Box 9875, Johannesburg.

NEOBACRIN OINTMENT

NON-SENSITIZING ANTIBIOTIC OINTMENT FOR SKIN AND EYE INFECTIONS

Description: An ointment containing neomycin and bacitracin for skin and eye infections.

Composition:

Neomycin sulphate 5 mg.
Zinc bacitracin 500 units } per grammie.

In a bland paraffin base.

Mode of Action: Neomycin is bactericidal to most gram-positive and gram-negative bacteria, especially the latter.

Bacitracin is also active against a wide variety of bacteria, especially gram-positive organisms.

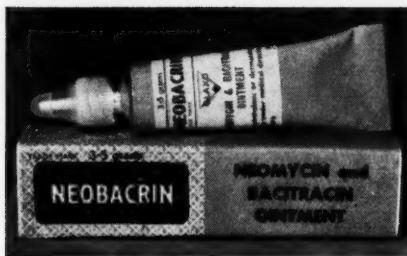
Both agents are effective against strains of staphylococci which are insensitive or have acquired resistance to other antibiotics.

Both neomycin and bacitracin, like penicillin and streptomycin, are bactericidal antibiotics. Its advantages include:

Negligible risk of sensitization;

Wide range of activity;

Lack of toxicity;



Absence of irritating properties.

Indications: (a) Skin Conditions: Impetigo; sy-

cosis barbae; furunculosis; secondarily infected wounds or burns; ulcers; infectious eczematoid; pyogenic dermatitis.

(b) *Superficial Infections of the Eye:* Conjunctivitis, blepharitis, infected Meibomian glands or lachrymal sacs.

Administration: Apply to the infected area 3 or 4 times a day.

Duration of treatment depends on the response of the infection.

Storage: Neobacrin Ointment keeps well under normal conditions of storage.

Packs: Available in 3.5 g. tubes (with nozzle), for ophthalmic or dermatological treatment.

Price to the Public: 3s. 9d. per tube.

Sole Distributors: Glaxo Laboratories (S.A.) (Pty.) Ltd., P.O. Box 9875, Johannesburg.

PREPARATE EN TOESTELLE

EF-CORTELAN-NEUSSPUITMIDDEL

HIDROKORTISOON VIR AANWENDING IN DIE NEUS

Samestelling: Ef-Cortelan-neusspuitmiddel is 'n isotoniese waterige oplossing bevattende:

Hidrokortisoen (alkohol)	0.02%
Nafasoliennitraat	0.025%

Tiomersaal 0.001% is bygevoeg as bewaarmiddel.

Werkingsmetode: Daar is reeds bewys dat as hidrokortisoen in baie verdunde oplossings aan die slymvlies van die neus gewend word, dit doeltreffend is vir die verligting van ontstekingsstoande in die neusweë. As dit in die neus ingespujt word, kom so 'n oplossing in intieme aanraking met die ontsteekte weefsels. Plaaslike aanwendings skakel die moontlikheid van sisteme gevolge uit, en die lae konsentrasie sal hoogs waarskynlik geen prikkeling veroorsaak nie. Die byvoeging van nafasolien, 'n ontstuwende vaatvernouer, help die hidrokortisoen om sy maksimum effek uit te oefen; die lae konsentrasie van hierdie middel verminder die gevaar van terugslagverskynsels.

Indikasies: Verskillende gewone allergiese ontstekingsstoande van die neus.

Toediening: Nadat die skroefdoppie verwyder is, word die tuif in die neusgat gesteek, en terwyl die pasiënt dan sy asem optrek, word die plastiek-botteltjie vinnig en stewig gedruk. Drie sodanige bespuittings van elke neusgat is gewoonlik voldoende vir 'n volwassene, maar in die geval van kinders word die aantal tot een of twee beperk. Dit kan ook in die vorm van druppels toegedien word deur die bottel om te keer en saggies te druk. Een tot twee druppels in iedere neusgat al om die drie uur behoort voldoende vir kinders te wees, en twee of drie druppels vir volwassenes.

Die duur van die behandeling met Ef-Cortelan-neusspuitmiddel wissel na gelang van die toestand wat behandel en die reaksie wat verkry word; onnodig lang behandeling moet ontmoedig word. In gevalle van akute infeksie sal dit misken nodig wees om hierdie infeksie gelyktydig te behandel.

Verpakking: Plastiekdrukbottels bevattende 15 k.s.

Prys vir die Publiek: 7s. 9d.

Enigste Verspreiders: Glaxo Laboratories (S.A.) (Pty.) Ltd., Posbus 9875, Johannesburg.

NEOBACRIN-SALF

'N NIE-SENSITISERENDE ANTIBIOTIESE SALF VIR INFEKSIJES VAN DIE VEL EN OOG

Beskrywing: 'n Salf bevattende neomisien en baksitrasien vir die behandeling van infeksies van die vel en die oog.

Samestelling:

Neomisiensulfaat 5 mg.	} per gram.
Sinkbaksitrasien 500 eenhede	

In 'n nie-prikkelende parafenbasis.

Manier Waarop dit Werk: Neomisien het 'n bakteriedodende effek op die meeste Gram-positiewe en Gram-negatieve bakterieë, veral laasgenoemde.



Baksitrasien tree ook kragdadig op teen 'n groot verskeidenheid van bakterieë, veral Gram-positiewe organismes.

Albei middels is doeltreffend vir die vernietiging van die stafilocokki-soorte wat ongevoelig is vir, of weerstand opgebou het teen ander antibiotica.

Sowel neomisien as baksitrasien, net soos penicillien en streptomisien, is bakteriedodende antibiotica.

Hul voordele kan soos volg saamgevat word:
 'n Heeltemal onbenullige gevaar van sensitisasie.
 'n Breë steer van bedrywigheid.

Geen toksiteit nie.

Geen prikkelende eienskappe nie.

Indikasies: (a) *Veltoestande:* Korintebaard; sy-cosis barbae; furunkulose; sekondêr besmette wonde; of brandplekke; swere; aansteeklike eksematoëde; piogeniese huidontsteking.

(b) *Oppervlakkige Infeksies van die Oog:* Oog-bindlylestekking; ooglidontsteking; besmette Meibomiaanse kliere of traansakkies.

Toediening: Smeer 3 tot 4 keer per dag aan die besmette dele.

Die duur van die behandeling hang van die reaksie van die infeksie af.

Berging: Neobacrin-salf bly goed as dit onder normale toestande gebêre word.

Verpakking: Verkrybaar in buisies (met 'n uit) van 3.5 g. vir die behandeling van die oë of die vel.

Prys vir die Publiek: 3s. 9d. per buisie.

Enigste Verspreiders: Glaxo Laboratories (S.A.) (Pty.) Ltd., Postbus 9875, Johannesburg.

BOOK REVIEW

DISEASE AND TRAVEL

Disease Control and International Travel. By H. S. Gear and Z. Deutschman. World Health Organization, Geneva. 73 pages, 13 illustrations, 7 maps. 3s. 6d. Pretoria: Van Schaik's Bookstore (Pty.), Ltd.

This booklet is a reprint of Volume 10, No. 9-10 of the *Chronicle of the World Health Organization*.

As the Director-General of WHO pointed out in 1951: 'The adoption by the Fourth World Health Assembly of the International Sanitary Regulations on 22 May 1951 is perhaps one of the most important achievements of the World Health Organization.' In this booklet, under the heading, *Disease Control and International Travel*, Dr. H. S. Gear (formerly of the Union Health Department) and Mr. Z. Deutschman provide an authoritative review of the International Sanitary Regulations and their role in international travel.

After an historical review of early quarantine practices, the authors show the gradual growth of international co-operation. Although it was a full century after the holding of the First International Sanitary Conference that the present Regulations were adopted, nevertheless the century had shown some remarkable progress in quarantine practice. The adoption of the 1951 Regulations has brought 'some order out of chaos'.

The earlier efforts were directed towards the control of the so-called quarantinable diseases—cholera, plague, louse-borne typhus, relapsing fever, smallpox and yellow fever. At one time, some of these diseases caused millions of deaths during epidemics. Gradually, however, improved sanitary conditions

brought these pestilences under control. The years since the Second World War have seen a dramatic decline in the extent and severity of these diseases, which are 'now shadows of their former menace'.

Nevertheless, the growth of modern communications resulting in the annual interchange of millions of travellers, implies the need for constant vigilance. In 1948 just under 4 million passengers were carried on international air services. By 1954 this figure had increased to just over 10.5 millions. Sea passengers have also increased in numbers; on the North Atlantic route just under one million passengers were carried in 1954.

To stop the spread of pestilential diseases from zones which are infected to those which are not, quarantine measures still remain essential. The modern International Sanitary Regulations are fully described by the authors. They also outline the up-to-date procedure used by WHO to help in the administration of these Regulations. WHO maintains a comprehensive quarantine intelligence and information service with operating units in Geneva, Singapore, Washington and Alexandria. Information received from government departments is transmitted throughout the world by radio: bulletins are broadcast daily from Geneva, Saigon, Manila and Djakarta, and once or twice a week from Alexandria, Singapore and 7 other stations in Asia.

This booklet, which contains numerous illustrations and maps showing the distribution of the pestilential diseases throughout the world, provides a brief but authoritative review of the problems of disease control in relation to international travel. It is not only intended for the public health worker, but all those who have an interest in international travel and affairs.

KORRESPONDENSIE

MEDIESE DIENSTE

Aan die Redakteur: Met verwysing na u redaksionele kommentaar¹ en *Mediese Dienste* van dr. Carel de Wet² in u uitgawe van 24 November 1956, sal u my toelaat om 'n paar reaksionére en moontlik rebelse gedagtes te uiter en belangrike feite te meld, nl.

i. Sommige geneeshere het geen ander belang in die lewe buiten die van hulle pasiënte.
 ii. Sommige geneeshere het alleen een bron van inkomste—hulle praktyk.

iii. Geen ander professionele liggaam sal verskilende skale van footo teenoor die publiek duld nie.

iv. Geen wederkerige regemoetkominge word aan geneeshere betoon deur die verskillende ambagte en professies nie.

v. Menigvuldige duplike, kantoor en boekwerk

sal die oorwerke geneesheer nog verder belas.

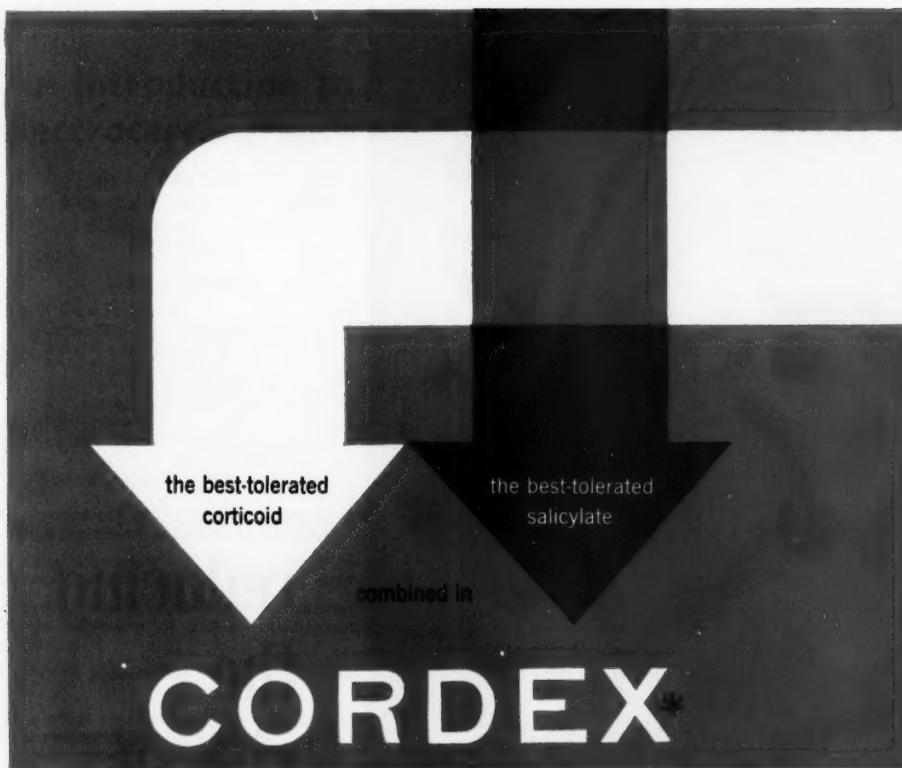
vi. Geneeshere sowel as die publiek moet die vrye keuse behou om onder verder regimentasie van 'Mediese Hulp Dienste', 'Hulpfondse', ens., ens., uit te bly.

VERWYSINGS

1. Redaksioneel (1956): Hierdie Tydskrif, 24 November, bl. 597.
2. de Det, C. (1956): Hierdie Tydskrif, 24 November, bl. 600.

Familiedokter.

[Ons beskou nie hierdie skrywer se gedagtes as reaksionér of rebels nie. Inteendeel, ons is die mening toegedaan dat sy gedagtes ooreenstem met dié van 'n groot meerderheid van ons kollegas.—Redakteur].



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By L. Schamroth,

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University of Witwatersrand and General Hospital,
Johannesburg

Table of Contents

- Chapter I Basic Principles.
 2 Myocardial Death, Injury and Ischaemia.
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 4 Ventricular Hypertrophy.
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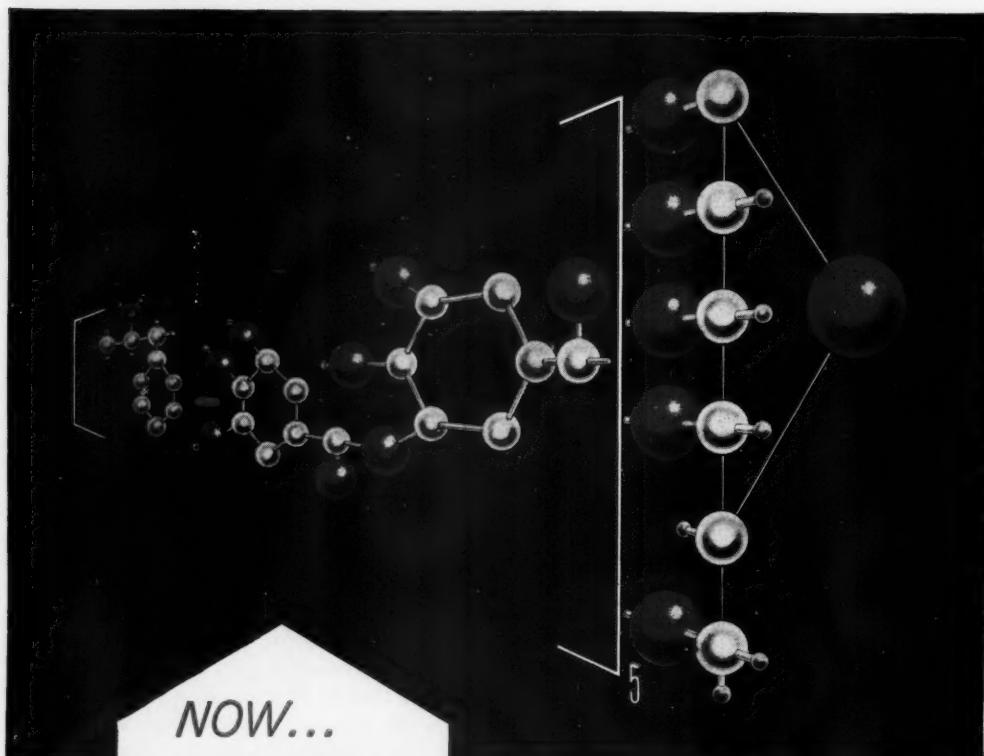
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